









# Using Tables and Queries

## Objectives

- ▶ Plan a database
-  ▶ Create a table
-  ▶ Modify a table
-  ▶ Format a datasheet
- ▶ Understand sorting, filtering, and finding
-  ▶ Sort records and find data
-  ▶ Filter records
-  ▶ Create a query
-  ▶ Modify a query


Now that you are familiar with some of the basic Access terminology and features, you are ready to plan and build your own database. Your first task is to create the tables that store the data. Once the tables are created and the data is entered, you can use several techniques for finding specific information in the database, including sorting, filtering, and building queries.  Kelsey Lang, a marketing manager at MediaLoft, wants to build and maintain a database containing information about MediaLoft's products. The information in the database will be useful when Kelsey provides information for future sales promotions.





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# Planning a Database

The most important object in a database is the table object. Tables store the **raw data**, the individual pieces of information stored in the fields in the database. When you design a table, you identify the fields of information the table will contain and the type of data to be stored in each field. Some databases contain multiple tables linked together.  Kelsey plans her database containing information about MediaLoft's products.

## Details

In planning a database it is important to:

► **Determine the purpose of the database and give it a meaningful name**

The database will store information about MediaLoft's music products. You decide to name the database MediaLoft, and name the first table Music Inventory.

► **Determine what reports you want the database to produce**

You want to be able to print inventory reports that list the products by artist, type of product (CD, cassette, minidisk), quantity in stock, and price. These pieces of information will become the fields in the Music Inventory table.

► **Collect the raw data that will be stored in the database**

The raw data for MediaLoft's products might be stored on index cards, in paper reports, and in other electronic formats, such as word processing documents, spreadsheets, or accounting system files. You can use Access to import data from many other electronic sources, which greatly increases the efficiency of your data entry.

► **Sketch the structure of each table, including field names and data types**

Using the data you collected, identify the field name and data type for each field in each table as shown in Figure B-1. The **data type** determines what type of information you can enter in a field. For example, a field with a Currency data type does *not* accept text. Properly defining the data type for each field helps you maintain data consistency and accuracy. Table B-1 lists the data types available within Access.



### Choosing between the Text and Number data type

When assigning data types, avoid choosing the Number data type for a telephone or zip code field. Although these fields generally contain numbers, they should still be Text data types. Consider the following: You may want to enter 1-800-BUY-BOOK in a telephone number field. This would not be possible if the field is designated

as a Number data type. Also, when you sort the fields, you want them to sort alphabetically, like Text fields. For example, with the zip codes 60011 and 50011-8888, if the zip code field is designated as a Number data type, the zip codes would be interpreted incorrectly as the values 60,011 and 500,118,888, and sorted in that order, too.

**FIGURE B-1:** Music Inventory fields and data types

Field Name	Data Type
RecordingID	AutoNumber
RecordingTitle	Text
RecordingArtist	Text
MusicCategory	Text
RecordingLabel	Text
Format	Text
NumberOfTracks	Number
PurchasePrice	Currency
RetailPrice	Currency
Notes	Memo


**TABLE B-1:** Data types

data type	description of data	size
<b>Text</b>	Text information or combinations of text and numbers, such as a street address, name, or phone number	Up to 255 characters
<b>Memo</b>	Lengthy text such as comments or notes	Up to 65,536 characters
<b>Number</b>	Numeric information used in calculations, such as quantities	Several sizes available to store numbers with varying degrees of precision
<b>Date/Time</b>	Dates and times	Size controlled by Access to accommodate dates and times across thousands of years (for example, 1/1/1850 and 1/1/2150 are valid dates)
<b>Currency</b>	Monetary values	Size controlled by Access; accommodates up to 15 digits to the left of the decimal point and four digits to the right
<b>AutoNumber</b>	Integers assigned by Access to sequentially order each record added to a table	Size controlled by Access
<b>Yes/No</b>	Only one of two values stored (Yes/No, On/Off, True/False)	Size controlled by Access
<b>OLE Object</b>	Objects and files linked or embedded (OLE) that are created in other programs, such as pictures, sound clips, documents or spreadsheets	Up to one gigabyte
<b>Hyperlink</b>	Web addresses	Size controlled by Access
<b>Lookup Wizard</b>	Invokes a wizard that helps link the current table to another table or list through the current field.	Size controlled through the choices made in the Lookup Wizard



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# Creating a Table

After you plan the structure of the table, your next step is to create the actual database file. This file will eventually contain the table and all of the other objects within the database file such as queries, forms, and reports. When you create a database, you start by naming it, and then you can build the first table object and enter data. Access offers several methods for creating the database and the first table. For example, you can import a table from another data source such as a spreadsheet, or use the Access **Table Wizard** to create a table from scratch. The Table Wizard provides interactive help to create the field names and data types for each field.  Kelsey is ready to create the MediaLoft database. She uses the Table Wizard to create the Music Inventory table.

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### Trouble?

If the task pane does not appear in the Access window, click File on the menu bar, then click New.

### Trouble?

If the Create table by using wizard option does not appear in the database window, click Tools on the menu bar, then click Options. On the View tab, make sure that the New object shortcuts check box is selected, then click OK.

### Trouble?

If you are viewing an empty datasheet, click the Design View button  on the Table Datasheet toolbar.

1. Start Access, click the **Blank Database link** in the New section of the task pane as shown in Figure B-2

The File New Database dialog box opens.

2. Type **MediaLoft** in the File name text box, click the **Save in list arrow**, navigate to the drive and folder where your Project Files are stored, then click **Create**

The MediaLoft database file is created and saved where your Project Files are stored. There are many ways to create the first table in the database, but the Table Wizard offers an efficient and easy way to get started.

3. Double-click **Create table by using wizard** in the MediaLoft Database window

The Table Wizard dialog box opens, as shown in Figure B-3. The Table Wizard offers 25 business and 20 personal sample tables from which you can select sample fields. The Recordings sample table in the Personal database category most closely matches the fields you want to include in the Music Inventory table.

4. Click the **Personal option button**, scroll down and click **Recordings** in the Sample Tables list box, then click the **Select All Fields button** 

At this point, you can change the suggested field names to better match your needs.

5. Click **RecordingArtistID** in the Fields in my new table list box, click **Rename Field**, type **RecordingArtist** in the Rename field text box, then click **OK**

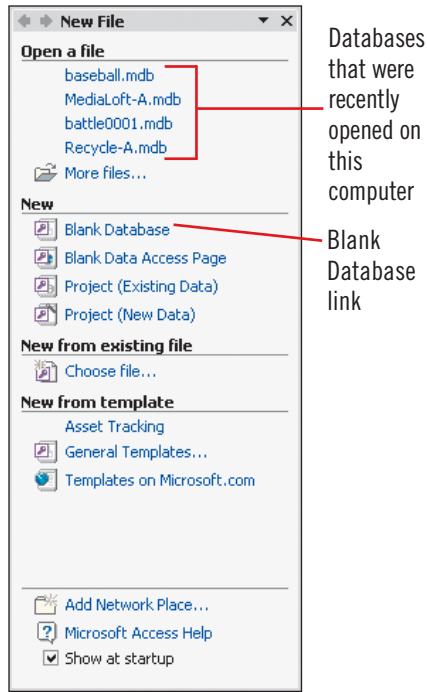
6. Click **Next**

The second Table Wizard dialog box allows you to name the table and determine if Access should set the **primary key**, a special field that contains unique information for each record in a table.

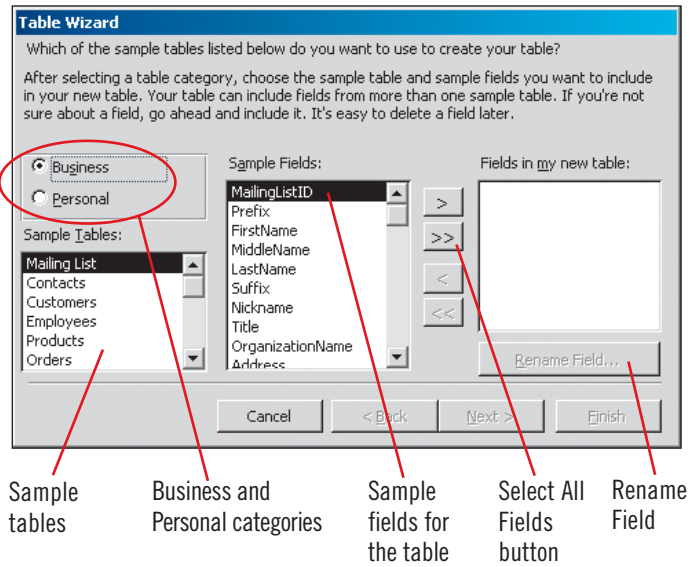
7. Type **Music Inventory**, make sure the **Yes, set a primary key for me option button** is selected, click **Next**, click the **Modify the table design option button**, then click **Finish**

The table opens in Design View, shown in Figure B-4, which allows you to add, delete, or modify the fields in the table. The **key symbol** indicates that the RecordingID field has been designated as the primary key field.

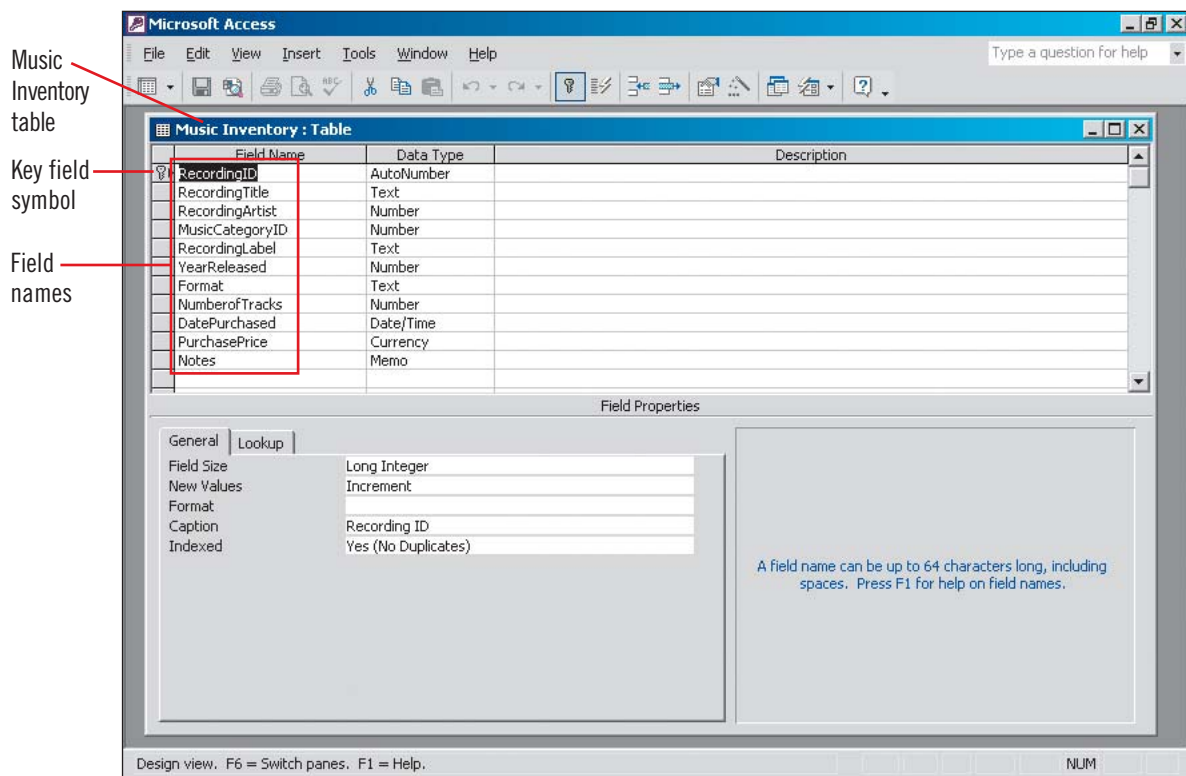
**FIGURE B-2: New File task pane**



**FIGURE B-3: Table Wizard**



**FIGURE B-4: Music Inventory table in Design view**





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# Modifying a Table

Each database object has a **Design View** in which you can modify its structure. The Design View of a table allows you to add or delete fields, add **field descriptions**, or change other field properties. Field **properties** are additional characteristics of a field such as its size or default value. Using the Table Wizard, Kelsey was able to create a Music Inventory table very quickly. Now in Design View she further modifies the fields to meet her specific needs. MediaLoft doesn't track purchase dates or release dates, but it does need to store retail price information in the database.

#### QuickTip

Deleting a field from a table deletes any data stored in that field for all records in the table!



#### QuickTip




You can also choose a data type by pressing its first letter such as C for Currency.

#### QuickTip

The Field Description entry appears in the status bar when that field has the focus in Datasheet View.

#### QuickTip


The Datasheet View button  becomes the Design View button  when working in Datasheet View.

1. In Design View of the Music Inventory table, click **DatePurchased** in the Field Name column, click the **Delete Rows button**  on the Table Design toolbar, click **YearReleased** in the Field Name column, click  to delete the field, click the **Notes** field, then click the **Insert Rows button** .

The Year Released and Date Purchased fields are deleted from the table. A new row appears above the Notes field in which you can enter a new field name.

2. Type **RetailPrice**, press **[Tab]**, click the **Data Type list arrow**, then click **Currency**  
The new field is added to the Music Inventory table, as shown in Figure B-5. Both the RecordingArtist and MusicCategoryID fields have a Number data type, but it should be Text.
3. Click the **Number** Data Type for the RecordingArtist field, click the **Data Type list arrow**, click **Text**, click the **Number** Data Type for the MusicCategoryID field, click the **Data Type list arrow**, then click **Text**

Now, descriptive words can be entered in these fields rather than just numbers. You must work in the Design View of a table to make structural changes to fields such as changing the data type.


4. Click to the right of **MusicCategoryID**, press **[Backspace]** twice to delete ID, then click the **Save button**  on the Table Design toolbar  
Field names can include any combination of letters, numbers and spaces, up to 64 characters long. The only special characters that are not allowed include the period (.), exclamation point (!), accent grave (`), and square brackets [ ]. Field descriptions are optional, but help to further describe the field.

5. Click the **MusicCategory Description cell**, then type **classical, country, folk, gospel, jazz, new age, rap, or rock**

The **Field Size** property limits the number of characters allowed for each field.

6. Make sure the **MusicCategory** field is still selected, double-click **50** in the Field Size cell, then type **9**

The longest entry in the MusicCategory field, classical, is only nine characters. The finished Music Inventory table Design View should look like Figure B-6.

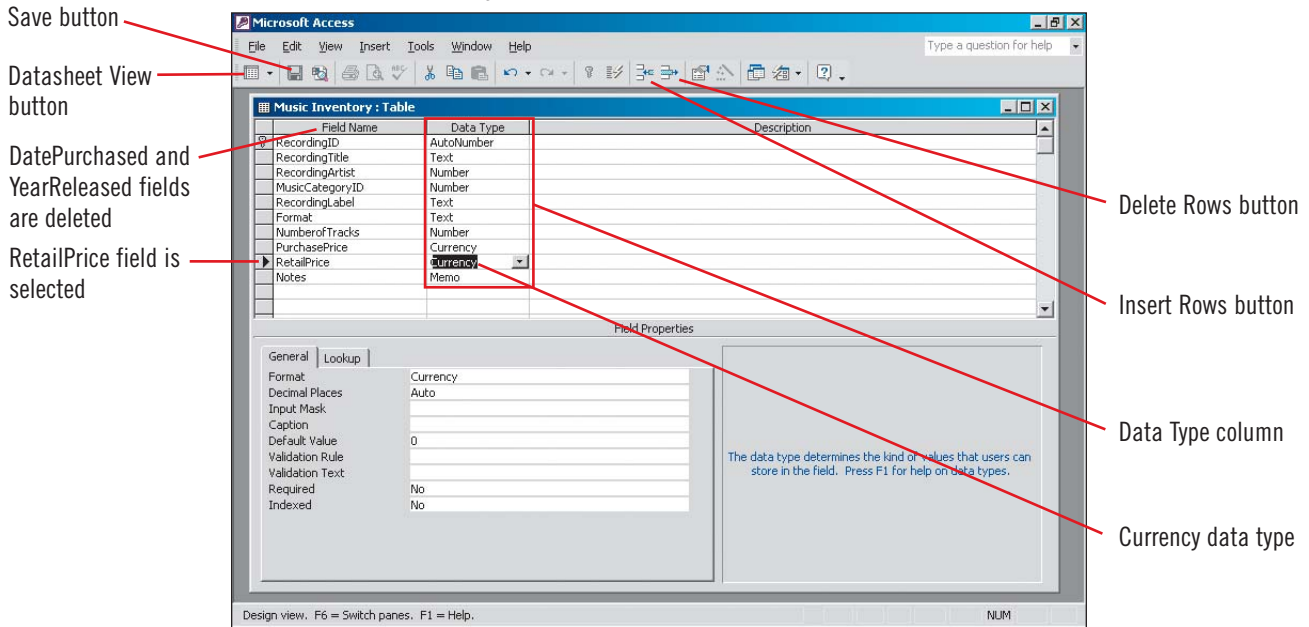
7. Click the **Datasheet View button**  on the Table Design toolbar, click **Yes** to save the table, then type the following record into the new datasheet:

in field:	type:	in field:	type:
Recording ID	<b>[Tab]</b>	Format	<b>CD</b>
Recording Title	<b>No Words</b>	Number of Tracks	<b>12</b>
RecordingArtist	<b>Brickman, Jim</b>	Purchase Price	<b>10</b>
Music Category ID	<b>New Age</b>	RetailPrice	<b>13</b>
Recording Label	<b>Windham Hill</b>	Notes	<b>[Tab]</b>

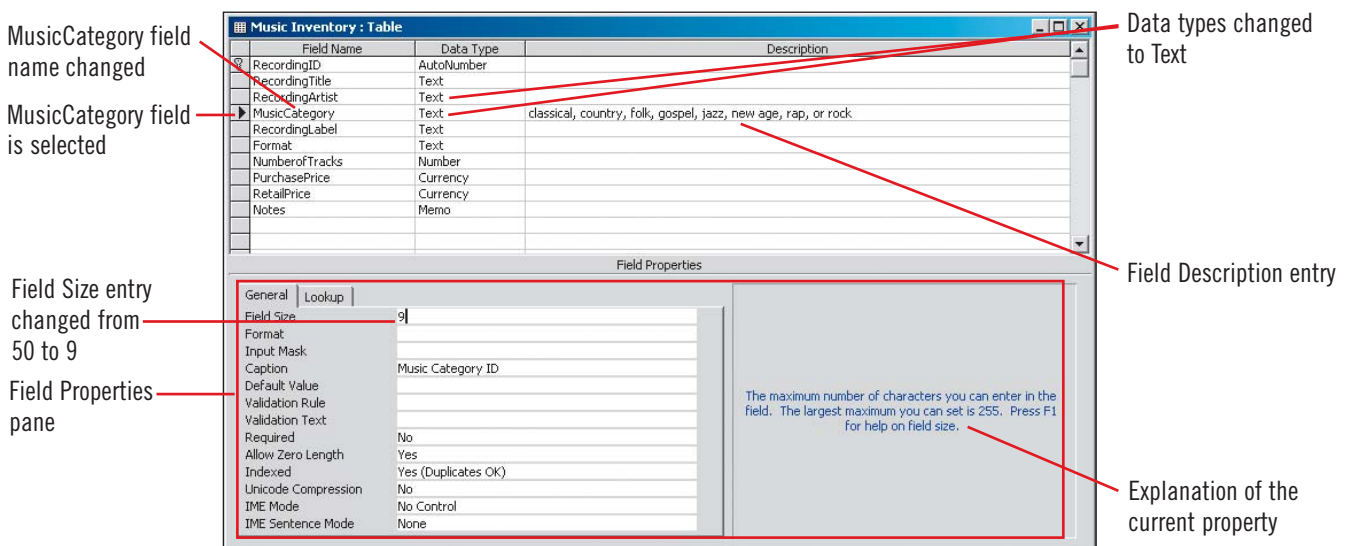
8. Close the Music Inventory table, then close the MediaLoft database  
Data is saved automatically, so you were not prompted to save the record when you closed the datasheet.



**FIGURE B-5: Music Inventory table with new RetailPrice field**



**FIGURE B-6: Modifying field properties**




## Learning about field properties

Properties are the characteristics that define the field. Two properties are required for every field: Field Name and Data Type. Many other properties, such as Field Size, Format, Caption, and Default Value are defined in the Field Properties pane found in the Design View of the table. As you add more property entries, you are generally restricting the amount or type of data that can be entered in the field, which in turn increases data entry accuracy. For example, you might change the Field Size property for a State field to 2 in order to eliminate an incorrect entry such as FLL. The Field Properties change depending on the

data type of the selected field. For example, there would be no Field Size property for a Birth Date field, because Access controls the size of fields with a Date/Time data type. The **Caption** property is used to override the field name with an easy-to-read caption on datasheets, forms, and reports. Database designers often insist on field names without spaces because they are easier to reference in other Access objects. Yet database *users* would rather view field names with spaces when entering data. That's why the tables created by the wizards have field names without spaces, but display more readable captions on the datasheet.



# Formatting a Datasheet

Although you primarily use the report object to create professional printouts from an Access database, you can print a datasheet too. Although you cannot create custom headings or insert graphic images on a datasheet as you can with a report, you can change the fonts, colors, and gridlines to dramatically change the appearance of the datasheet.  Kelsey has entered some information about MediaLoft's music products into the Music Inventory table of the MediaLoft-B database. Now she will print the Music Inventory datasheet after formatting it with a new font and gridline color.

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
### QuickTip

You can also double-click an object to open it.

### QuickTip

Right-click any toolbar to open a shortcut menu of available toolbars. A check mark appears next to displayed toolbars.

### QuickTip

You can click the Setup button  on the Print Preview toolbar to open the Page Setup dialog box to modify margins and paper orientation.













1. Click the **Open button**  on the Database toolbar, select the **MediaLoft-B** database from the drive and folder where your Project Files are stored, then click **Open**
2. Click the **Music Inventory** table in the MediaLoft-B database window, then click the **Open button**  on the database window toolbar  
The Music Inventory table on the Database window toolbar contains 58 records, as shown in Figure B-7. Formatting options for a datasheet are found on the Format menu or on the Formatting (Datasheet) toolbar. When you format a datasheet, every record in the datasheet is formatted the same way.
3. Click **Format** on the menu bar, click **Font**, scroll and click **Comic Sans MS** in the Font list, then click **OK**  
Comic Sans MS is an informal font that simulates handwritten text, but is still very readable. By default, the Formatting (Datasheet) toolbar does not appear in Datasheet View, but toolbars are easily turned on and off using the View menu.
4. Click **View** on the menu bar, point to **Toolbars**, then click **Formatting (Datasheet)**.  
The Formatting (Datasheet) toolbar contains the most common formatting options for changing the font, colors, and gridlines of the datasheet.
5. Click the **Line/Border Color button list arrow** , click the **red** box, click the **Gridlines button list arrow** , then click the **Gridlines: Horizontal** box  
In addition to formatting changes, you may wish to change the page setup options before you print a datasheet.
6. Select **Cook, Jesse** in the Artist field of the first record, type your last name, your first name, click **File** on the menu bar, click **Page Setup**, click the **Page tab**, click the **Landscape option button**, then click **OK**  
Your name is in the Artist field of the first record to uniquely identify your printout.
7. Click the **Print Preview button**  on the Table Datasheet toolbar, click the **Next Page button**  in the Print Preview Navigation buttons to view page 2, then click the **Print button**   
The First Page  and Previous Page buttons  will be dimmed if you are viewing the first page of the datasheet. The Next Page  and Last Page buttons  will be dimmed if you are viewing the last page of the datasheet. By default, the table name and current date print in the datasheet header, and the page number prints in the datasheet footer as shown in Figure B-8.
8. Click the **Close button**  for the preview window, click **No** when asked to save the changes to the layout of the table, double-click the **Music Inventory** table to reopen the datasheet, then study the first record  
The font and gridline formatting changes were *not* saved when you answered No to the question about saving changes to the layout. Your name entry in the Artist field of the first record *was* automatically saved by Access. Remember, all data entries and data edits are automatically saved as you move between records or close a datasheet.



FIGURE B-7: Music Inventory table datasheet

RecordingID	Title	Artist	Category	Label	Format	Tracks	
1	Gravity	Cook, Jesse	New Age	Columbia	CD	15	
2	Come Walk With Me	Adams, Oleta	Gospel	CBS Records	CD	10	
3	Greatest Hits	Winans, BeBe & CeCe	Gospel	Benson	Vinyl	9	
4	Tribute	Yanni	New Age	MCA	CD	10	
5	World Café	Tree Frogs	Rap	New Stuff	CD	12	
6	Relationships	Winans, BeBe & CeCe	Gospel	Capitol	CD	14	
7	No Words	Brickman, Jim	New Age	Windham Hill	CD	10	
8	God's Property	Nu Nation	Rap	B-Rite Music	Cassette	13	
9	Message	4 Him	Gospel	Benson	CD	13	
10	Sacred Road	Lantz, David	New Age	Narada	Cassette	12	
11	Mariah Carey	Carey, Mariah	Rock	Columbia	CD	11	
12	Ironman Triathlon	Tesh, John	New Age	GTS Records	Cassette	9	
13	Daydream	Carey, Mariah	Rock	Columbia	CD	12	
14	Heartsounds	Lantz, David	New Age	Narada	CD	14	
15	The Roches	Roches, The	Folk	Warner Bros. Records	Cassette	10	
16	Can We Go Home Now	Roches, The	Folk	Ryko	CD	11	
17	Live at the Red Rocks	Tesh, John	New Age	GTS Records	CD	16	
18	I'll Lead You Home	Smith, Michael	Gospel	Reunion	CD	14	
19	Winter Song	Tesh, John	New Age	GTS Records	CD	12	
20	December	Winston, George	New Age	Windham	CD	12	
21	Time, Love & Tenderness	Bolton, Michael	Rock	Sony Music	CD	10	

58 total records

FIGURE B-8: Previewing the formatted datasheet

Table name

Music Inventory

12/14/2002

RecordingID	Title	Artist	Category	Label	Format	Tracks	Wholesale	Retail
1	Gravity	Cook, Jesse	New Age	Columbia	CD	15	20.00	25.00
2	Come Walk With Me	Adams, Oleta	Gospel	CBS Records	CD	10	26.00	25.00
3	Greatest Hits	Winans, BeBe & CeCe	Gospel	Benson	Vinyl	9	24.00	25.00
4	Tribute	Yanni	New Age	MCA	CD	10	20.00	25.00
5	World Café	Tree Frogs	Rap	New Stuff	CD	12	24.00	25.00
6	Relationships	Winans, BeBe & CeCe	Gospel	Capitol	CD	14	26.00	25.00
7	No Words	Brickman, Jim	New Age	Windham Hill	CD	10	27.00	25.00
8	God's Property	Nu Nation	Rap	B-Rite Music	Cassette	13	20.00	25.00
9	Message	4 Him	Gospel	Benson	CD	13	27.00	25.00
10	Sacred Road	Lantz, David	New Age	Narada	Cassette	12	26.00	25.00
11	Mariah Carey	Carey, Mariah	Rock	Columbia	CD	11	20.00	25.00
12	Ironman Triathlon	Tesh, John	New Age	GTS Records	Cassette	9	20.00	25.00
13	Daydream	Carey, Mariah	Rock	Columbia	CD	12	26.00	25.00
14	Heartsounds	Lantz, David	New Age	Narada	CD	14	27.00	25.00
15	The Roches	Roches, The	Folk	Warner Bros. Records	Cassette	10	20.00	25.00
16	Can We Go Home Now	Roches, The	Folk	Ryko	CD	11	26.00	25.00
17	Live at the Red Rocks	Tesh, John	New Age	GTS Records	CD	16	27.00	25.00
18	I'll Lead You Home	Smith, Michael	Gospel	Reunion	CD	14	27.00	25.00
19	Winter Song	Tesh, John	New Age	GTS Records	CD	12	20.00	25.00
20	December	Winston, George	New Age	Windham	CD	12	20.00	25.00
21	Time, Love & Tenderness	Bolton, Michael	Rock	Sony Music	CD	10	26.00	25.00
22	Summer	Winston, George	New Age	Windham	Vinyl	7	20.00	25.00
23	When Harry Met Sally	Carroll, Jr., Henry	Jazz	CBS Records	Cassette	11	27.00	25.00
24	The Lighter Side	Rothman, Greg	Gospel	Broadway	CD	10	26.00	25.00
25	Parlance	Stefanetti, Leopold	Classical	Harmonia Records	CD	6	27.00	25.00
26	Donny & Marie	Donny & Marie	New Age	Arctic	Cassette	11	20.00	25.00
27	Christmas in the Heart	Greenwood, Lee	Country	MCA Records	CD	10	27.00	25.00
28	The Best of Chuck & Mimi	Alvarenga, Chuck	Jazz	Adelphi Records	Cassette	10	26.00	25.00

Page 1

Page: 1

First Page button Previous Page button Next Page button Last Page button


Page number

Current date



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# Understanding Sorting, Filtering, and Finding

The records of a datasheet are automatically sorted according to the data in the primary key field. Often, however, you may want to view or print records in an entirely different sort order, or you may want to display a subset of the records, such as those within the same music category or those below a certain retail price. Access makes it easy to sort, find data, and filter a datasheet by using buttons on the Table Datasheet toolbar, summarized in Table B-2.  Kelsey studies the sort, find, and filter features to better learn how to find and retrieve information.

## Details

- ▶ **Sorting** refers to reorganizing the records in either ascending or descending order based on the contents of a field. In ascending order, Text fields sort from A to Z, Number and Currency fields from the lowest to the highest value, and Date/Time fields from the oldest date to the date furthest into the future. In Figure B-9 the Music Inventory table has been sorted in ascending order on the Artist field. Notice that in a Text field, numbers sort before letters.
- ▶ **Filtering** means temporarily isolating a subset of records, as shown in Figure B-10. For example, by using a filter, you can produce a listing of all music with the value “Rock” in the Category field. To redisplay all of the records in the datasheet, click the Remove Filter button. The filtered subset can be formatted and printed just like the entire datasheet.
- ▶ **Finding** refers to locating a specific piece of data, such as “Amy.” The Find and Replace dialog box is shown in Figure B-11. The options in this dialog box are summarized below.
  - **Find What:** Provides a text box for your search criteria. The search criteria might be Amy, Beatles, or Capitol Records.
  - **Look In:** Determines whether Access looks for the search criteria in the current field or in the entire datasheet.
  - **Match:** Determines whether the search criteria must exactly match the contents of the whole field, any part of the field, or the start of the field.
  - **Search:** Allows you to search the entire datasheet (All) or just those records before (Up) or after (Down) the current record.
  - **Match Case:** Determines whether the search criteria is case sensitive (e.g., NH vs. Nh vs. nh).
  - **Search Fields As Formatted:** Determines whether the search criteria is compared to the actual value of the field or the formatted appearance of the value (e.g., 10 vs. \$10.00).
  - **Replace tab:** Provides a Replace With text box for you to specify replacement text. For example, you can find every occurrence of CD and replace it with Compact Disc.



### Using wildcards

**Wildcards** are symbols you use as substitutes for characters to locate data that matches your Find criteria. Access uses these wildcards: the **asterisk (\*)** represents any group of characters, the **question mark (?)** stands

for any single character, and the **pound sign (#)** stands for a single number digit. For example, to find any word beginning with S, type s\* in the Find What text box.

FIGURE B-9: Music Inventory datasheet sorted by Artist

Records are sorted in ascending order by Artist

Music Inventory : Table							
RecordingID	Title	Artist	Category	Label	Format	Tracks	
9	Message	Hill, 4	Gospel	Benson	CD	13	
2	Come Walk With Me	Adams, Oleta	Gospel	CBS Records	CD	10	
54	Cosmic Thing	B-52s	Rock	Warner Records	CD	10	
53	Abbey Road	Beatles, The	Rock	Capitol Records	Vinyl	14	
47	Revolver	Beatles, The	Rock	Capitol Records	CD	12	
34	Handel's Messiah	Bernstein, Leonard	Classical	CBS Records	Cassette	11	
40	Favorite Overtures	Bernstein, Leonard	Classical	CBS Records	Vinyl	5	
21	Time, Love & Tenderness	Bolton, Michael	Rock	Sony Music	CD	10	
7	No Words	Brickman, Jim	New Age	Windham Hill	CD	10	
42	Garth Brooks Live	Brooks, Garth	Country	Liberty Records	CD	10	
38	The Chase	Brooks, Garth	Country	A&M Records	CD	10	
25	The Lighter Side	Buchanan, Greg	Gospel	Bread 'n Honey	CD	10	
13	Daydream	Carey, Mariah	Rock	Columbia	CD	12	
11	Mariah Carey	Carey, Mariah	Rock	Columbia	CD	11	
43	Pilgrim	Clapton, Eric	Rock	Capitol Records	CD	13	
24	When Harry Met Sally	Connick Jr., Harry	Jazz	CBS Records	Cassette	11	
36	Watermark	Enya	New Age	GTS Records	CD	12	
44	The Dance	Fleetwood Mac	Rock	ABC Records	CD	12	
45	Interludes	Fresh Aire	New Age	American Gramophone	CD	10	

FIGURE B-10: Music Inventory datasheet filtered for Rock in the Category field

Sort Ascending button

Sort Descending button

Selection criteria = Rock

Field description text

Apply Filter or Remove Filter button

Filter By Form button

Filter By Selection button

Number of records in filtered subset

Music Inventory : Table							
RecordingID	Title	Artist	Category	Label	Format	Tracks	
54	Cosmic Thing	B-52s	Rock	Warner Records	CD	10	
47	Revolver	Beatles, The	Rock	Capitol Records	CD	12	
53	Abbey Road	Beatles, The	Rock	Capitol Records	Vinyl	14	
21	Time, Love & Tenderness	Bolton, Michael	Rock	Sony Music	CD	10	
13	Daydream	Carey, Mariah	Rock	Columbia	CD	12	
11	Mariah Carey	Carey, Mariah	Rock	Columbia	CD	11	
43	Pilgrim	Clapton, Eric	Rock	Capitol Records	CD	13	
44	The Dance	Fleetwood Mac	Rock	ABC Records	CD	12	
37	Cracked Rear View	Hootie and the Blowfis	Rock	Arista	CD	11	
51	Blue	Mitchell, Joni	Rock	Liberty Records	CD	10	
48	Hourglass	Taylor, James	Rock	CBS Records	CD	11	
39	Foreign Affair	Turner, Tina	Rock	Capitol Records	Vinyl	12	

Record: 1 of 16 (Filtered)

FLTR NUM

FIGURE B-11: Find and Replace dialog box

Search criteria

Look In field

Search direction

Search criteria must match whole field


Find and Replace	
Find	Replace
Find What:	Amy
Look In:	Artist
Match:	Whole Field
Search:	All
<input type="checkbox"/> Match Case	<input checked="" type="checkbox"/> Search Fields As Formatted
Find Next	Cancel

TABLE B-2: Sort, Filter, and Find buttons

name	button	purpose
Sort Ascending		Sorts records based on the selected field in ascending order (0 to 9, A to Z)
Sort Descending		Sorts records based on the selected field in descending order (Z to A, 9 to 0)
Filter By Selection		Filters records based on selected data and hides records that do not match
Filter By Form		Filters records based on more than one selection criteria by using the Filter By Form window
Apply Filter or Remove Filter		Applies or removes the filter
Find		Searches for a string of characters in the current field or all fields



# Sorting Records and Finding Data

The sort and find features are powerful tools that help you work more efficiently whether you are working with data in a datasheet or viewing it through a form.  Kelsey needs to create several different printouts of the Music Inventory datasheet to satisfy various departments. The marketing department wants the records sorted by Title and by Artist. The accounting department wants the records sorted from the highest retail price to the lowest.

## Steps 1234

### QuickTip

If you close a datasheet without saving the layout changes, the records return to the original sort order based on the values in the primary key field. If you close a datasheet and save layout changes, the last sort order will be saved.





1. In the Music Inventory datasheet, click any value in the Title field, then click the **Sort Ascending button**  on the Table Datasheet toolbar  
The records are sorted in ascending order by the values in the Title field, as shown in Figure B-12.
2. Click **any cell** in the Artist field, then click   
The records are sorted in ascending order by the values in the Artist field.
3. Scroll to the right to view the Retail field, click any value in the Retail field, then click the **Sort Descending button**  on the Table Datasheet toolbar  
The products that sell for the highest retail price are listed first. Access also lets you find all records based on search criteria.
4. Click any value in the Title field, then click the **Find button**  on the Table Datasheet toolbar  
The Find and Replace dialog box opens with Title selected as the Look In field. You have been asked to find the titles that may be hot sellers during the Christmas season.
5. Type **Christmas** in the Find What text box, click the **Match list arrow**, then click **Any Part of Field**, as shown in Figure B-13  
“Christmas” is the search criteria. Access will find all occurrences of the word Christmas in the Title field, whether it is the first, middle, or last part of the title.
6. Click **Find Next**, then drag the title bar of the Find and Replace dialog box up and to the right to better view the datasheet  
If you started the search at the top of the datasheet, A Family Christmas is the first title found.
7. Click **Find Next** to find the next occurrence of the word Christmas, then click **Find Next** as many times as it takes to move through all the records  
When no more occurrences of the search criteria Christmas are found, Access provides a dialog box that tells you that no more matching records can be found.
8. Click **OK** when prompted that Access has finished searching the records, then click **Cancel** to close the Find and Replace dialog box

FIGURE B-12: Music Inventory datasheet sorted by Title

Records are sorted ascending by Title

Music Inventory : Table							
	RecordingID	Title	Artist	Category	Label	Format	Tracks
	55	A Christmas Album	Grant, Amy	Folk	Reunion Records	CD	11
	46	A Family Christmas	Tesh, John	New Age	GTS Records	CD	14
	32	A Winter's Solstice	Windham Hill Artists	New Age	Windham	CD	10
	53	Abbey Road	Beatles, The	Rock	Capitol Records	Vinyl	14
	22	Autumn	Winston, George	New Age	Windham	Vinyl	7
	51	Blue	Mitchell, Joni	Rock	Liberty Records	CD	10
	16	Can We Go Home Now	Roches, The	Folk	Ryko	CD	11
	35	Christmas	Mannheim Steamroller	New Age	Sony Music	CD	11
	28	Christmas to Christmas	Greenwood, Lee	Country	MCA Records	CD	10
	31	Closeup	Sandborn, David	Jazz	MCA Records	Cassette	10
	2	Come Walk With Me	Adams, Oleta	Gospel	CBS Records	CD	10
	54	Cosmic Thing	B-52s	Rock	Warner Records	CD	10
	37	Cracked Rear View	Hootie and the Blowfis	Rock	Arista	CD	11
	13	Daydream	Carey, Mariah	Rock	Columbia	CD	12
	52	Decade	Young, Neil	Rock	A&M Records	CD	10
	20	December	Winston, George	New Age	Windham	CD	12
	26	Fantasia	Stokowski, Leopold	Classical	Buena Vista Records	CD	6
	40	Favorite Overtures	Bernstein, Leonard	Classical	CBS Records	Vinyl	5
	39	Foreign Affair	Turner, Tina	Rock	Capitol Records	Vinyl	12
	42	Garth Brooks Live	Brooks, Garth	Country	Liberty Records	CD	10
	8	God's Property	Nu Nation	Rap	B-Rite Music	Cassette	13

FIGURE B-13: Enter Christmas as the search criteria for the Title field

Find and Replace

Find What: Christmas

Look In: Title

Match: Any Part of Field

Search: All

☐ Match Case ☒ Search Fields As Formatted

Find the search criteria anywhere in the field

Search criteria



### Using more than one sort field


The telephone book sorts records by last name (**primary sort field**) and when ties occur on the last name (for example, two Smiths), the telephone book further sorts the records by first name (**secondary sort field**). Access allows you to sort

by more than one field using the query object, which you will learn more about later in this unit. Queries allow you to use more than one sort field by specifying sort criteria in Query Design View.





# Filtering Records


Filtering the datasheet temporarily displays only those records that match criteria. **Criteria** are rules or limiting conditions you set. For example, you may want to show only those records where the Category field is equal to Rap, or where the PurchasePrice field is less than \$10. Once you have filtered a datasheet or form to display a subset of records, you can still sort the records and find data just as if you were working with all of the records.  The accounting department asked Kelsey for a listing of cassettes with a retail price of \$15 or more. Kelsey uses the datasheet filter buttons to fulfill this request.


## Steps 1 2 3 4

1. In the Music Inventory datasheet, click the **RecordingID** field, click the **Sort Ascending button**  on the Table Datasheet toolbar, click any occurrence of **Cassette** in the Format field, then click the **Filter By Selection button**  on the Table Datasheet toolbar

Twelve records are selected, as shown in Figure B-14. Filter By Selection is a fast and easy way to filter the records for an exact match (in this case, where the Format field value is *equal to* Cassette). To filter for comparative data and to specify more complex criteria including **comparison operators** (for example, where PurchasePrice is *equal to or greater than* \$15), you must use the Filter By Form feature. See Table B-3 for more information on comparison operators.

### QuickTip

If criteria become lengthy, you can widen a column to display the entire criteria entry just as you can widen columns in a datasheet. If you need to clear previous criteria, click the Clear Grid button .

2. Click the **Filter By Form button**  on the Table Datasheet toolbar, scroll to the right to click the **Retail** criteria cell, then type **>=15**

The Filter By Form window is shown in Figure B-15. The previous Filter By Selection criteria, Cassette in the Format field, is still in the grid. Access distinguishes between text and numeric entries by placing quotation marks around text entries. Filter By Form is more powerful than Filter By Selection because it allows you to enter criteria for more than one field at a time so that *both* criteria must be true in order for the record to be shown in the resulting datasheet.

3. Click the **Apply Filter button**  on the Filter/Sort toolbar, then scroll to the right to display the Retail field



Only two records are true for both criteria, as shown in Figure B-16. The Record Navigation buttons in the lower-left corner of the datasheet display how many records were chosen for the filtered subset. The Apply Filter button becomes the Remove Filter button after a filter is applied.

### QuickTip

Be sure to remove existing filters before you apply a new filter or you will end up filtering a subset of records versus the entire datasheet.

4. Click the **Remove Filter button**  on the Table Datasheet toolbar

The datasheet redisplay all 58 records.

5. Click any value in the Label field, click , click **A&M Records** in the Label field if it is not already selected, then click 

Using sort and filter skills, you quickly found the five records that met the A&M Records criteria.

6. Close the datasheet, then click **Yes** if prompted to save the changes to the Music Inventory table

Saving a table layout saves the last sort order, but filters are always removed when you close a datasheet, regardless of whether you save the changes to the layout.



FIGURE B-14: Music Inventory datasheet filtered for Cassette in the Format field

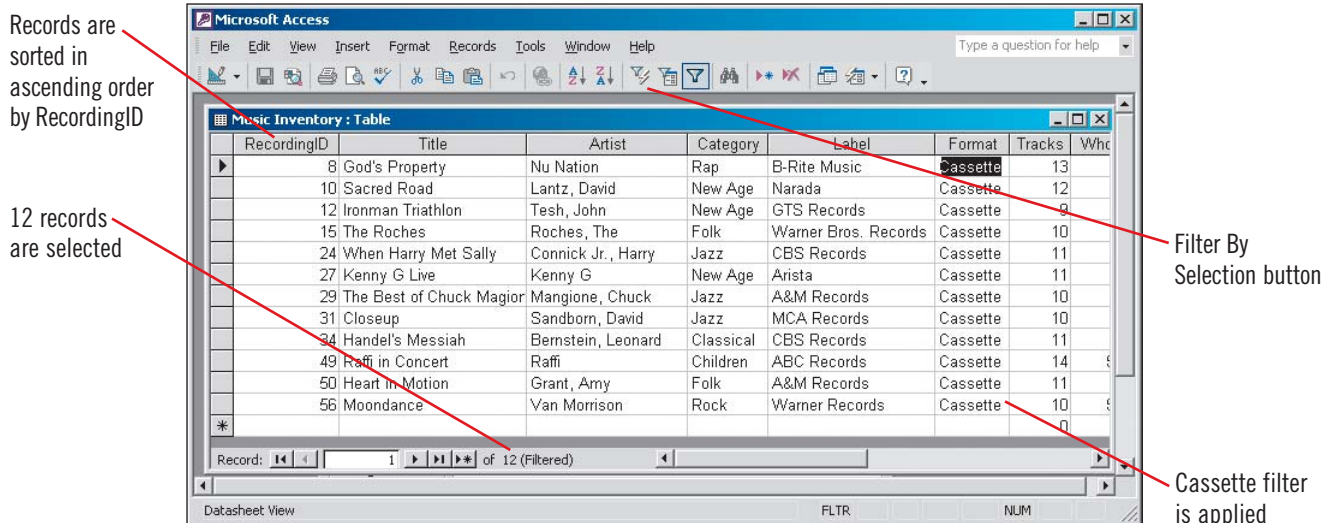


FIGURE B-15: Filter By Form grid

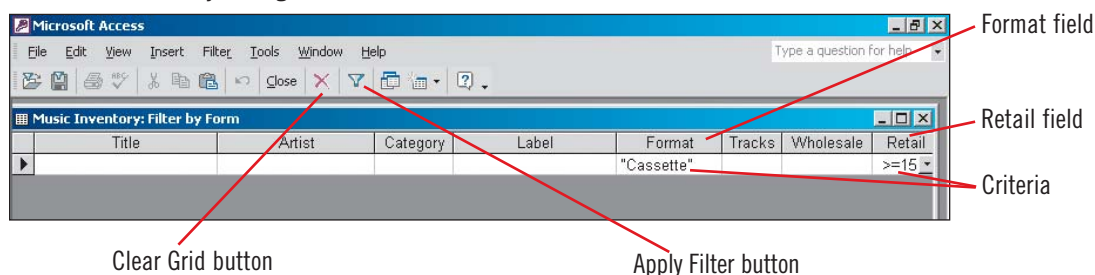


FIGURE B-16: Two records matched Filter By Form criteria

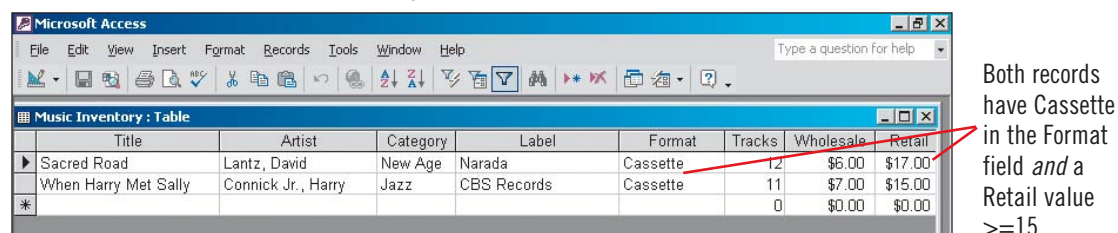


TABLE B-3: Comparison operators

operator	description	expression	meaning
>	Greater than	>500	Numbers greater than 500
>=	Greater than or equal to	>=500	Numbers greater than or equal to 500
<	Less than	<"Braveheart"	Names from A to Braveheart, but not Braveheart
<=	Less than or equal to	<="Bridgewater"	Names from A through, and including, Bridgewater
<>	Not equal to	<>"Cyclone"	Any name except for Cyclone




## Searching for blank fields

**Is Null** and **Is Not Null** are two other types of common criteria. **Is Null** criteria will find all records where no entry has been made in the field. **Is Not**

**Null** will find all records where there is any entry in the field, even if the entry is 0. Primary key fields cannot have a null entry.









# Creating a Query

A **query** is a database object that creates a datasheet of specified fields and records from one or more tables. It displays the answer to a question about the data in your database. You can edit, navigate, sort, find, and filter a query's datasheet just like a table's datasheet. A query is similar to a filter, but much more powerful. For example, a query is a saved object within the database whereas a **filter** is a temporary view of the data whose criteria is discarded when you close the datasheet or form that is being filtered. Table B-4 compares the two.  Kelsey uses the Simple Query Wizard to build a query.

## Steps 1234

### QuickTip

You can double-click a field to move it from the Available Fields list to the Selected Fields list.

1. Click **Queries** on the Objects bar, then double-click **Create query by using wizard**  
The Simple Query Wizard dialog box opens, allowing you to choose the table or query which contains the fields you want to display in the query. You select the fields in the order that you want them to appear on the final query datasheet.
2. Click **Category** in the Available Fields list, click the **Select Single Field button** , click **Title**, click , click **Artist**, click , click **Tracks**, then click   
The Simple Query Wizard dialog box should look like Figure B-17. The fields shown in the Available Fields list are determined by what table or query is selected in the Tables/Queries list.
3. Click **Next**, click **Next** to accept the **Detail option**, then click **Finish** to accept the suggested query title and to view the data  
The Music Inventory Query's datasheet opens with all 58 records, but with only the four fields that you requested in the query wizard, as shown in Figure B-18. You can use a query datasheet to edit or add information.
4. Double-click **10** in the Tracks cell for record 7, No Words, then type **11**  
The Specific Record box indicates what record you are currently editing. Editing data through a query datasheet changes the data in the underlying table just as if you were working directly in the table's datasheet. A query does *not* produce a duplicate set of data, but rather, displays the original table data in a new arrangement. A query is sometimes called a **logical view** of the data. Any data additions, deletions, or editions you make through a query datasheet are actually made to the original data stored in the table object.
5. Click the **Design View button**  on the Query Datasheet toolbar  
The **Query Design View** opens, showing you a **field list** for the Music Inventory table in the upper portion of the window, and the fields you have requested for this query in the **query design grid** in the lower portion of the window.
6. Click the **Criteria cell** for the Category field, then type **country** as shown in Figure B-19  
Query Design View is used to add, delete, or change the order of fields, sort the records, or add criteria to limit the number of records shown in the resulting datasheet. Any change made in Query Design View is saved with the query object.
7. Click the **Datasheet View button**  on the Query Design toolbar  
The resulting datasheet has four records that match the country criteria in the Category field. To save this query with a more descriptive name than the one currently displayed in the query title bar, use the Save As command on the File menu.
8. Click **File** on the menu bar, click **Save As**, type **Country Music** in the Save Query 'Music Inventory Query' To text box, click **OK**, then close the query datasheet  
Both the original Music Inventory Query and the modified Country Music queries are saved in this database. You can double-click a query to reopen the datasheet in the same way as you can open the datasheet of a table.

### QuickTip

Criteria is not case sensitive so country and Country produce the same results.

FIGURE B-17: Simple Query Wizard dialog box

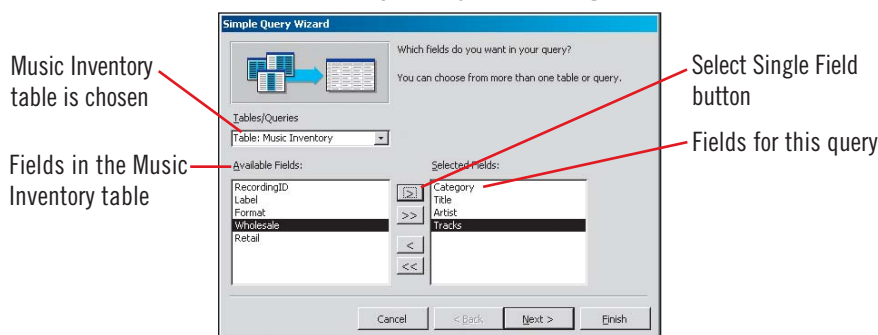


FIGURE B-18: Music Inventory Query datasheet

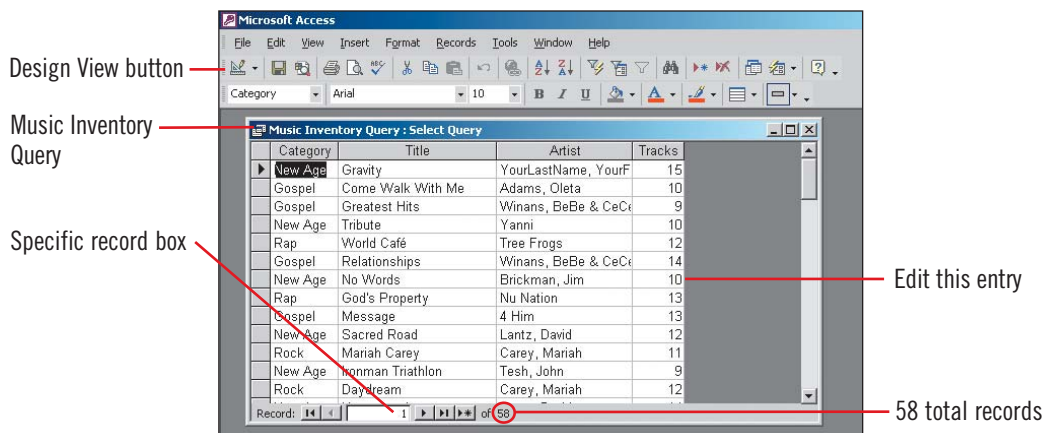


FIGURE B-19: Query Design View

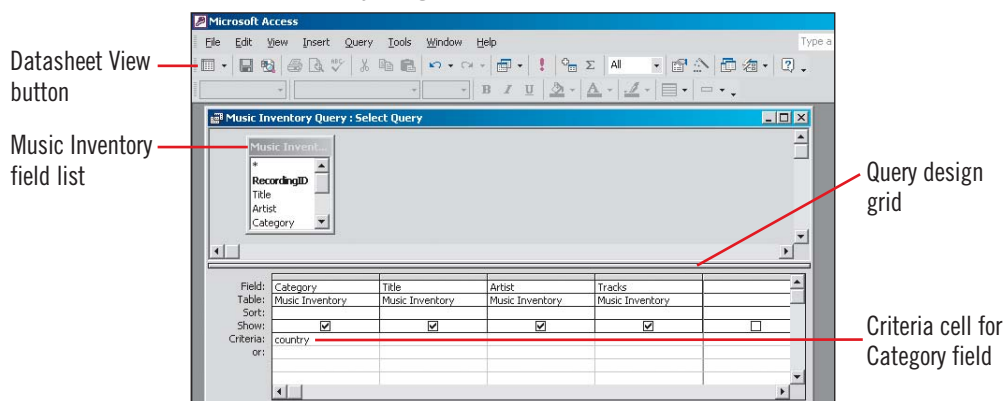



TABLE B-4: Queries vs. filters

Characteristics	filters	queries
Are saved as an object in the database	No	Yes
Can be used to select a subset of records in a datasheet	Yes	Yes
Can be used to select a subset of fields in a datasheet	No	Yes
Its resulting datasheet can be used to enter and edit data	Yes	Yes
Its resulting datasheet can be used to sort, filter, and find records	Yes	Yes
Is commonly used as the source of data for a form or report	No	Yes
Can calculate sums, averages, counts, and other types of summary statistics across records	No	Yes
Can be used to create calculated fields	No	Yes



## Access 2002

# Modifying a Query

Whether an existing query is created through the use of a wizard or built from scratch in Query Design View, to modify the query you work in Query Design View in the same way you modify existing tables by working in Table Design View. Query Design View is where you employ powerful query features such as defining complex criteria, defining multiple sort orders, and building calculated fields.  Kelsey wants to modify the Country Music query in a variety of ways. She uses Query Design View to make the changes and then she prints the resulting datasheet.

## Steps 1234

### QuickTip

Right-click an object and click Design View from the shortcut menu to open it in this view.

### Trouble?

If the field list in the upper portion of Query Design View is not visible, use the Query Design scroll bars to move to the top and left part of the window.

### Trouble?

Click the field selector for a field to select it, release the mouse button, then drag the field selector for the chosen field. A thin, black, vertical bar will indicate where the field will be positioned as you drag it.








1. Click the **Country Music query** in the MediaLoft-B Database window, then click the **Design button**  on the database window toolbar  
Query Design View opens, displaying the current fields and criteria for the Country Music query. To add fields to the query, you drag the fields from the field list to the position in the query design grid where you want them to appear on the datasheet.
2. Scroll in the Music Inventory field list, then drag the **Retail field** to the **Tracks Field cell** in the query design grid as shown in Figure B-20  
The Retail field is added to the query design grid between the Artist and Tracks fields. You can also delete fields in the existing query grid.
3. Click the **field selector** for the Category field, then press the **Delete** key  
Deleting a field from Query Design View does not have any affect on the data stored in the underlying table. Deleting a field from a query means that this field will not be displayed on the datasheet for this query.
4. Click the **Sort cell** for the Title field, click the **Sort list arrow**, click **Ascending**, click the **Sort cell** for the Artist field, click the **Sort list arrow**, click **Ascending**, then click the **Datasheet View button**  on the Query Design toolbar to view the resulting datasheet  
Since sort orders are evaluated in a left-to-right order and there are no duplicate values in the primary sort order (Title), the secondary sort order (Artist) is never used to further determine the order of the records. To change the primary and secondary sort orders for a query, use Query Design View.
5. Click  on the Query Datasheet toolbar, click the **field selector** for the Artist field to select it, then drag the **field selector** for the Artist field to the first column position in the query design grid as shown in Figure B-21  
The primary sort order will now be determined by the Artist field, and the secondary sort order by the Title field.
6. Click  to view the resulting datasheet  
Study records 4 and 5, which contain the same Artist value, "Beatles, The." Note that the records are further sorted by the values in the Title field. You can specify as many sort orders as you desire in Query Design View, but they are always evaluated in a left-to-right order. You can also add multiple criteria values in Query Design View.
7. Click , click the first **Criteria cell** for the Retail field, type **>=15**, click the first **Criteria cell** for the Tracks field, type **>=12**, then click  to view the resulting datasheet as shown in Figure B-22  
Twelve records are selected that matched both criteria. The query design grid row into which query criteria is entered is extremely important. Criteria entered on the same row must *both* be true for the record to be selected. Criteria entered on different rows are evaluated separately, and a record need only be true for *one* row of criteria in order to be selected for the resulting datasheet.
8. Click the **Print button**  on the Query Datasheet toolbar, close the datasheet without saving changes, close the MediaLoft-B database, then exit Access

FIGURE B-20: Retail field added to query grid

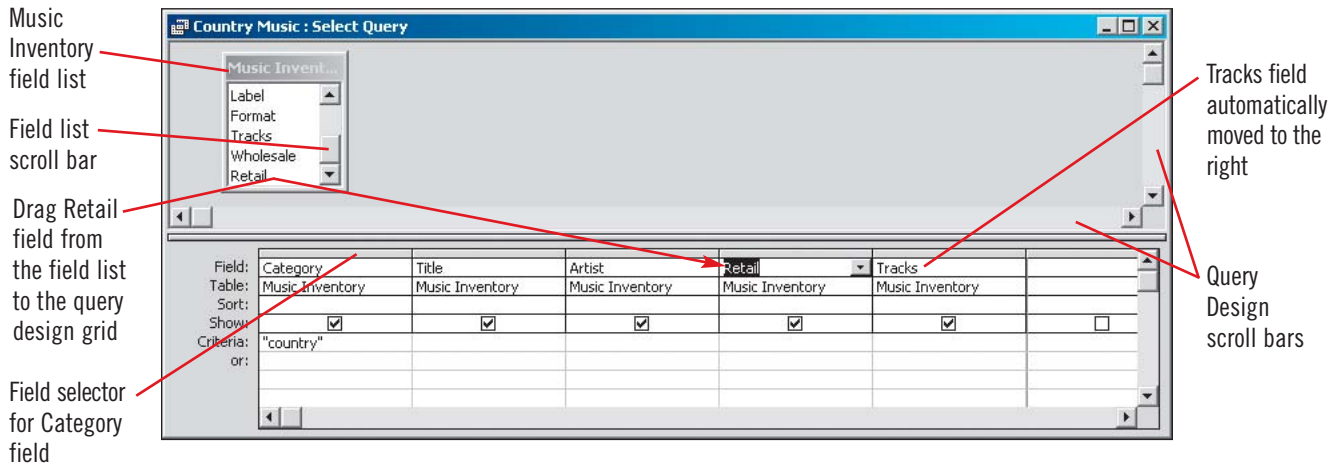


FIGURE B-21: Sorting records using the Artist and Category fields

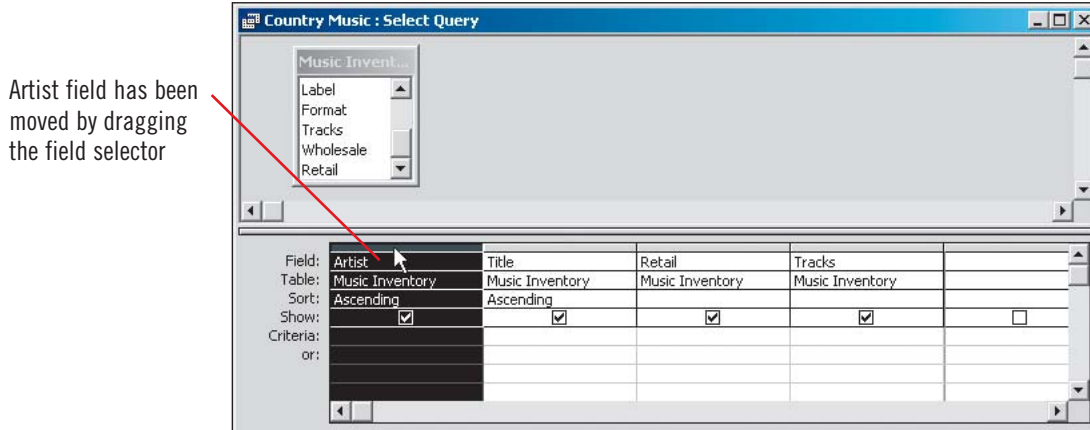
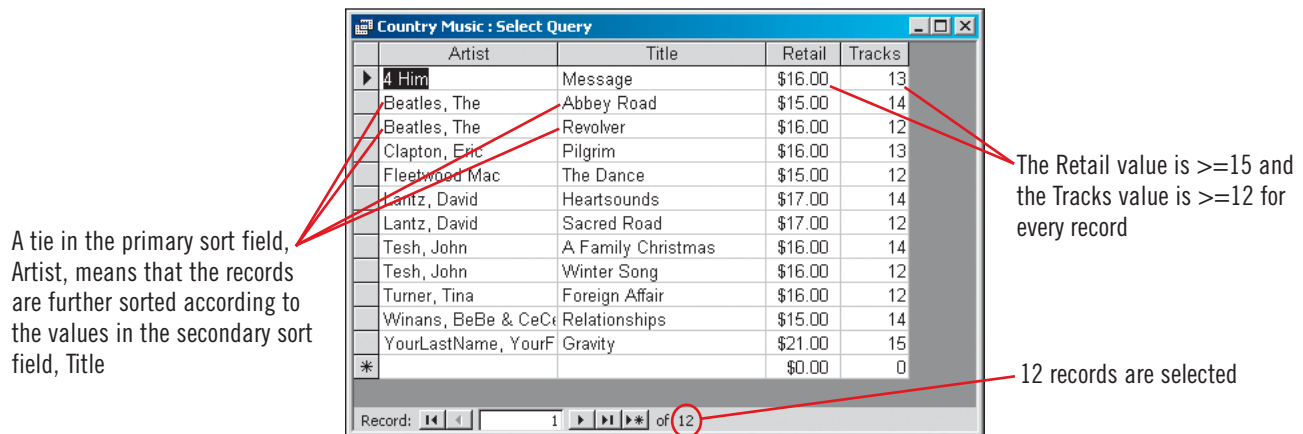


FIGURE B-22: The final datasheet



## Understanding And and Or criteria

Criteria placed on different rows of the query design grid are **Or criteria**. In other words, a record may be true for *either* row of criteria in order for it to be displayed on the resulting datasheet. Placing additional criteria in the *same* row, however, creates **And criteria**. Records must meet the criteria for *all* of the criteria on one row in order to be chosen for that datasheet. As

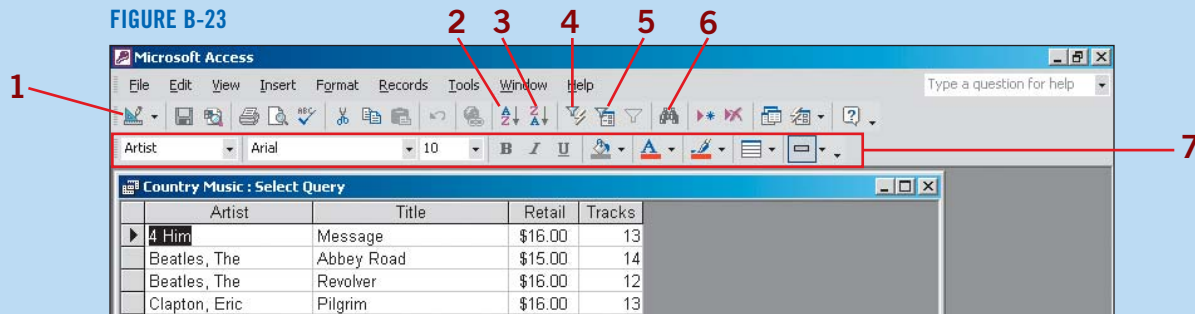
you add additional rows of criteria (Or criteria) to the query design grid, you increase the number of records displayed on the resulting datasheet because the record needs to be true for the criteria in only *one* of the rows in order to be displayed on the datasheet for that query.



# Practice

## ► Concepts Review

Label each element of the Select Query window shown in Figure B-23.



Match each term with the statement that describes it.

- |                 |   |
|-----------------|---|
| 8. Primary key  | a. Determines what type of data can be stored in each field   |
| 9. Table Wizard | b. Provides interactive help to create the field names and data types for each field in a new table   |
| 10. Filter      | c. A database object that creates a datasheet of specified fields and records from one or more tables |
| 11. Data type   | d. A field that contains unique information for each record   |
| 12. Query       | e. Creates a temporary subset of records  |

Select the best answer from the list of choices.

13. Which data type would be best for a field that was going to store birth dates?
  - a. Text
  - b. Number
  - c. AutoNumber
  - d. Date/Time
14. Which data type would be best for a field that was going to store Web addresses?
  - a. Text
  - b. Memo
  - c. OLE
  - d. Hyperlink
15. Which data type would be best for a field that was going to store telephone numbers?
  - a. Text
  - b. Number
  - c. OLE
  - d. Hyperlink
16. Each of the following is true about a filter, *except*:
  - a. It creates a temporary datasheet of records that match criteria.
  - b. The resulting datasheet can be sorted.
  - c. The resulting datasheet includes all fields in the table.
  - d. A filter is automatically saved as an object in the database.
17. Sorting refers to:
  - a. Reorganizing the records in either ascending or descending order.
  - b. Selecting a subset of fields and/or records to view as a datasheet from one or more tables.
  - c. Displaying only those records that meet certain criteria.
  - d. Using Or and And criteria in the query design grid.



## ► Skills Review

### 1. Plan a database.

- Plan a database that will contain the names and addresses of physicians. You might use a telephone book to gather information.
- On paper, sketch the Table Design view of a table that will hold this information. Write the field names in one column and the data types for each field in the second column.

### 2. Create a table.

- Start Access and use the Blank Access database option to create a database. Save the file as **Doctors** in the drive and folder where your Project Files are stored.
- Use the Table Wizard to create a new table. Use the Contacts sample table found in the Business database category.
- Choose each of the sample fields in the following order: ContactID, FirstName, LastName, Address, City, StateOrProvince, PostalCode, Title.
- Rename the StateOrProvince field as **State**.
- Name the table **Addresses**, and allow Access to set the primary key field.
- Click the Modify the table design option button in the last Table Wizard dialog box, then click Finish.

### 3. Modify a table.

- In the first available blank row (after the Title field), add a new field called **PhoneNumber** with a Text data type.
- Change the Field Size property of the State field from 20 to **2**.
- Insert a field named **Suite** with a Text data type between the Address and City fields.
- Add the description **M.D. or D.O.** to the Title field.
- Save the Addresses table, display the Addresses datasheet, and enter one record using your own information in the name fields. Remember that the ContactID field is specified with an AutoNumber data type that automatically increments the value in that field when you start making an entry in any other field.
- Use the Page Setup dialog box to change the Page Orientation to Landscape. Preview the datasheet. If it doesn't fit on one page, return to the datasheet and resize the columns until the record previews on a single page, and then print that page.
- Close the Doctors database.

### 4. Format a datasheet.

- Open the **Doctors-B** database from the drive and folder where your Project Files are stored. Open the Doctor Addresses table datasheet.
- Change the font of the datasheet to Arial Narrow, and the font size to 9.
- Change the gridline color to black, and remove the vertical gridlines.
- Change the Page Orientation to Landscape and all of the margins to 0.5". Preview the datasheet (it should fit on one page), then print and close it without saving the formatting changes.

### 5. Understand sorting, filtering, and finding.

- On a sheet of paper, identify three ways that you might want to sort an address list, such as the Doctor Addresses datasheet. Be sure to specify both the field you would sort on and the sort order (ascending or descending).
- On a sheet of paper, identify three ways that you might want to filter an address list, such as the Doctor Addresses datasheet. Be sure to specify both the field you would filter on and the criteria that you would use.

### 6. Sort records and find data.

- Open the Doctor Addresses datasheet, sort the records in ascending order on the Last field, then list the first two last names on paper.
- Sort the Doctor Addresses records in descending order on the Zip field, then list the first two doctors on paper.
- Find the records in which the Address1 field contains Baltimore in any part of the field. How many records did you find?
- Find the records where the Zip field contains **64012**. How many records did you find?

**7. Filter records.**

- a. In the Doctor Addresses datasheet, filter the records for all physicians with the Title **D.O.** Print this datasheet with narrow margins and in landscape orientation so that it fits on one page.
- b. In the Doctor Addresses datasheet, filter the records for all physicians with **M.D.** in the Title field and **64012** in the Zip field, then print this datasheet with narrow margins and in landscape orientation so that it fits on one page.
- c. Close the Doctor Addresses datasheet, and save the layout changes.

**8. Create a query.**

- a. Use the Query Wizard to create a new query based on the Doctor Addresses table with the following fields: First, Last, City, State, Zip.
- b. Name the query **Doctors in Missouri**, then view the datasheet.
- c. In Query Design View, add the criteria **MO** to the State field, then view the datasheet.
- d. Change Mark Garver's last name to **Garvey**.
- e. Change Samuel Harley's first and last name to your first and last name, then save the query.

**9. Modify a query.**

- a. Modify the Doctors in Missouri query to include only those doctors in Kansas City, Missouri. Be sure that the criteria is in the same row so that both criteria must be true for the record to be displayed.
- b. Save the query with the name **Doctors in Kansas City Missouri**. Print the query results, then close the query datasheet.
- c. Modify the Doctors in Kansas City Missouri query so that the records are sorted in ascending order on the last name, then add the DoctorNumber field as the first field in the datasheet.
- d. Print and save the sorted datasheet for that query, then close the datasheet.
- e. Close the Doctors-B database then exit Access.

## ► Independent Challenge 1

You want to start a database to track your personal video collection.

- a. Start Access and create a new database called **Movies** in the drive and folder where your Project Files are located.
- b. Using the Table Wizard, create a table based on the Video Collection sample table in the Personal category with the following fields: MovieTitle, YearReleased, Rating, Length, DateAcquired, PurchasePrice.
- c. Rename the YearReleased field as **Year** and the PurchasePrice field as **Purchase**.
- d. Accept the default name **Video Collection** for the table and allow Access to set a primary key field.
- e. Modify the Video Collection table in Design View with the following changes:
  - Delete the Rating Field.
  - Change the Length field to a Number data type.
  - Change the DateAcquired field name to **DatePurchased**.
  - Add a field between Year and Length called **PersonalRating** with a Number data type.
  - In the Description of the PersonalRating field, enter: **My personal rating on a scale from 1 (bad) to 10 (great)**.
  - Add a field between PersonalRating and Length fields called **Rated** with a Text data type.
  - In the Description of the Rated field, enter: **G, PG, PG-13, R**.
  - Change the Field Size property of the Rated field to **5**.
- f. Save the Video Collection table, and then open it in Datasheet View.
- g. Enter five records with sample data from videos you own or movies you've seen, print the datasheet, close the Video Collection table, close the Movies database, then exit Access.

## ► Independent Challenge 2

You work for a marketing company that sells medical supplies to doctors' offices.

- Start Access and open the **Doctors-B** database from the drive and folder where your Project Files are located, then open the Doctors Addresses table datasheet.
- Filter the records to find all those physicians who live in **Grandview**, modify column widths so that all data is visible, edit William Baker's last name to your last name, change the paper orientation to landscape, preview, then print the datasheet.
- Sort the filtered records by last name, change the cell color to silver (use the Fill/Back Color button on the Formatting toolbar or the Background Color list found in the Datasheet Formatting dialog box), change the font style to bold, then print the datasheet.
- Close the Doctors Addresses datasheet without saving the changes.
- Using the Query Wizard, create a query with the following fields: First, Last, Phone.
- Name the query **Telephone Query**. Sort the records in ascending order by last name, then print the datasheet. Close the query without saving the changes.
- In Query Design View of the Telephone Query, delete the First field, then add the Title field between the existing Last and Phone fields. Add an ascending sort order to the Phone field. Save, view, and print the datasheet.
- In Query Design View of the Telephone Query, add the State field to the fourth column. Add criteria so that only those records where there is no entry in the State field are displayed on the resulting datasheet. (*Hint: Use **Is Null** criteria for the State cell.*)
- View the datasheet, and then change Sanderson's last name to your last name. Print and close the Telephone Query without saving the changes. Close the Doctors-B database, then exit Access.

## ► Independent Challenge 3

You want to create a database to keep track of your personal contacts.

- Start Access and create a new database called **People** in the drive and folder where your Project Files are located.
- Using the Table Wizard, create a table based on the Addresses sample table in the Personal category with the following fields: FirstName, LastName, SpouseName, Address, City, StateOrProvince, PostalCode, EmailAddress, HomePhone, Birthdate.
- Name the table **Contact Info**, allow Access to set the primary key field, and choose the Enter data directly into the table option in the last Table Wizard dialog box.
- Enter at least five records into the table, making sure that two people have the same last name. Use your name for one of the records. Note that the Contact InfoID field has an AutoNumber data type.
- Sort the records in ascending order by last name, then save and close the Contact Info datasheet.
- Using the Query Wizard, create a query with the following fields from the Contact Info table in this order: LastName, FirstName, Birthdate. Name the query **Birthday List**.
- In Query Design View, sort the records in ascending order by LastName and then by FirstName.
- Save the query as **Sorted Birthday List**, then view the query. Change the Birthdate value to **1/6/71** for your record.
- Modify the datasheet by making font and color changes, print it, then close it without saving it.
- Open the datasheet for the Contact Info table and observe the Birthdate value for your record. On a piece of paper, explain why the 1/6/71 value appears in the datasheet for the table when you made the edit in the Sorted Birthday List query.
- Explain why the 1/6/71 value was saved even though you closed the query without saving the layout changes.
- Close the Contact Info table, close the People database, then exit Access.



## Independent Challenge 4

You are on the staff of an economic development team whose goal is to encourage tourism in the Baltic Sea region. You have created an Access database called Baltic-B to track important fields of information on the countries in that region, and will use the Internet to find information about the area.

- Start Access and open the **Baltic-B** database from the drive and folder where your Project Files are located.
- Open the Countries table datasheet, then click the expand button to the left of Norway as well as to the left of Oslo using Figure B-24 as a guide.
- This arrangement of data shows you how events are tracked by city, and how cities are tracked by country in the Baltic-B database.
- Connect to the Internet, and then go to [www.yahoo.com](http://www.yahoo.com), [www.ask.com](http://www.ask.com), or any general search engine to conduct some research for your database. Your goal is to enter at least one city record (the country's capital city) for each country. Be sure to enter the Population data for that particular city, rather than for the entire country. You can enter the data by expanding the country record subdatasheets as shown for Norway in Figure B-24, or by entering the records directly into the Cities datasheet.
- Return to the search engine, and research upcoming tourist events for Oslo, Norway. Enter three more events for Oslo into the database. You can enter the data into the Event subdatasheet shown in Figure B-24, or enter the records directly into the Events datasheet by opening the Events table datasheet. If you enter the records into the Events datasheet, remember that the CityID field value for Oslo is 1.
- Open the Countries datasheet, expand all records so that all of the cities for each country as well as all of the events for Oslo appear. Print the expanded datasheet.
- Close the Countries datasheet, close the Baltic-B database, then exit Access.

**FIGURE B-24**

**Countries : Table**

Country
+ Belarus
+ Czech Republic
+ Denmark
+ Estonia
+ Finland
+ Germany
+ Latvia
▶ - Norway
* Poland
+ Russia
+ Sweden
+ Ukraine
*

CityID	City	Capital	Population
1	Oslo	<input checked="" type="checkbox"/>	477,500

EventID	EventName	EventDate
1	National Dog E	9/7/2002
*		

CityID	City	Capital	Population
		<input type="checkbox"/>	0

Record: 1 of 1

## ► Visual Workshop

Open the **MediaLoft-B** database from the drive and folder where your Project Files are located. Create a query based on the Music Inventory table that displays the datasheet shown in Figure B-25. Notice that only the Jazz category is displayed and that the records are sorted in a descending order on the Retail field. Change the Title of the first record to include your last name, then print the datasheet. Save the query as **Jazz Selections** in the MediaLoft-B database.

FIGURE B-25

**Jazz Selections : Select Query**

	Category	Retail	Artist	Title	Tracks
▶	Jazz	\$15.00	Connick Jr., Harry	When Harry Met Sally	11
	Jazz	\$13.00	Sandborn, David	Closeup	10
	Jazz	\$10.00	Mangione, Chuck	The Best of Chuck Mangione	10
*		\$0.00			0

Record: 1 of 3